Healthcare Innovations
How practice has changed

HERSTON HEALTH PRECINCT SYMPOSIUM 2021

CLIN-0002

6 - 10 September 2021
Education Centre
RBWH

Clinical significance of unexpected ^{18}FDG PET avidity in the gastrointestinal lumen

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Introduction and methods: Incidental GIT uptake is found in up to 6.3% of patients undergoing PET scans for evaluation for non-GI diseases. This may be physiologic or pathologic and requires further endoscopic assessment. This is a retrospective review of all consecutive patients undergoing endoscopic assessment (over a 9-year period) for incidental ^{18}FDG PET positivity in the GIT. The aim was to determine the diagnostic yield and to establish characteristics of PET avidity as predictors of clinically significant findings.
Results: Lower GIT: 255 patients (62% male, median age 67 years) underwent colonoscopic assessment for 276 separate areas of PET avidity in the colon (focal 223, segmental 53). Malignancy was found in 44 (16%) cases. Intense and focal PET avidity in the colon predicted a higher likelihood of a neoplastic change (cancer or significant polyp [>10mm in size or with high grade dysplasia])in the colon p<0.001. Segmental uptake was more likely to correlate to localizing diverticulosis or mucosal inflammation at colonoscopy p<0.001) (Table 1).

TABLE 1: Lower GIT	Intense n=198	Non-intense n=78	
Cancer or significant polyp	39 (20%) + 83 (42%) =122 (62%)	5 (6%) + 20 (26%) = 25 (32%)	OR 3.4 (95% CI 1.95 – 5.92) p<0.0001
Inflammation or diverticulosis	31 (16%)	15 (19%)	OR 1.3 (CI 95% 0.65 – 2.5) p=0.47
	Focal n=223	Segmental n=53	
Cancer or significant polyp	37(16.5%) +99 (44.5%) = 136 (61%)	7 (13%) + 4 (8%) = 11 (21%)	OR 5.97 (95% CI 2.9 – 12.2) p <0.0001
Inflammation or diverticulosis	25 (11%)	20 (38%)	OR 4.8 (95% CI 2.4 – 9.6) p<0.0001

Results: Upper GIT: 75 patients (46 male, median age 63 years) underwent a gastroscopy for 77 isolated incidental PET uptakes (focal 51, segmental 26). Malignancy was found in 16 cases, all of which were second primary lesions. Numerically, malignant findings were more common in intense (11/37[29.7%]) than non-intense (5/40[12.5%]) PET avid group, p=0.069. There was no significant difference in inflammatory findings at gastroscopy performed for segmental (73%) or focal uptake (72.5%) (p=0.96). (Table 2)

TABLE 2: Upper GIT	Intense n=37	Non-intense n=40	
Malignant finding n=16	11 (30%)	5 (12.5%)	OR2.96 (95% CI 0.92 – 9.57) p=0.069
Inflammation n=56	25 (67.5%)	31 (77.5%)	OR 0.6 (95% CI .022 – 1.66) p=0.33
	Focal n=51	Segmental n=26	
Malignant finding n=16	10 (20%)	6 (23%)	OR 0.81 (95% CI 0.26 – 2.55) p=0.72
Inflammation n=56	37 (72.5%)	19 (73%)	OR 1.03 (95% CI 0.35 – 2.97) p=0.96

Conclusion: Amongst patients having PET scans for non-GI diseases, endoscopic assessment performed for incidental focal as well as intense colonic uptake correlates strongly with a high-risk polyp or malignant finding. Up to 21% of all gastroscopies performed for this indication diagnosed a second primary malignancy. These referrals need appropriate triaging and timely endoscopic assessment.